

WHAT IS CLAIMED IS:

1. An image decoding device, which decodes in target macro block units, coded image signals that are coded by DCT, quantization, and variable-length coding, comprising:

5 a target macro block setting means for setting a target macro block to be decoded currently from among an entire image to identify a target macro block;

 a target macro block extraction means for performing a variable length decoding process and a zigzag scan on said coded image signal and extracts data of said target macro block to produce an extracted target macro block data,

10 a prediction means for performing a DC/AC prediction process on said extracted target macro block data,

 an inverse quantization means for performing inverse quantization on said target macro block data that have been subject to said prediction process, and

15 an inverse DCT means for performing inverse DCT on said target macro block data that have been subject to inverse quantization and outputs an image of said target macro block;

 said prediction means includes a reference value storage means;

20 said reference value storage means including means for holding reference values that are necessary for said prediction process performed on said target macro block;

 a prediction computation means for performing prediction computation based on reference values of said reference value storage means;

 a predicted value storage means for holding results of said prediction computation;

a prediction control means for controlling said reference value storage means, said prediction computation means, and said predicted value storage means; and

5 a total storage volume of said reference value storage means and said predicted value storage means is smaller than a storage volume of predicted values for an entire image size, and said prediction control means includes means for copying data, necessary for said prediction computation of a next target macro block, from said predicted value storage means to said reference value storage means.

10 2. An image decoding device as set forth in Claim 1, wherein:
said reference value storage means includes means for holding a line part;
said line part includes DC components and AC components for a single line in said image size;

15 said reference value storage means further includes means for holding a corner part;

said corner part including one DC component
said reference value storage means further includes a left part; and
said left part includes DC components and AC components of a block located immediately prior and adjacently to a left side of said target macro block.

20 3. An image decoding device as set forth in Claim 2, wherein for four luminance components of each target macro block, said line part includes an area allocated for two sets of DC components and AC components.

25 4. An image decoding device as set forth in Claim 2, wherein said left part is allocated for two sets of DC components and AC components for said four luminance components of said target macro block.

5. An image decoding device as set forth in Claim 3, wherein said left part is allocated for two sets of DC components and AC components for said four luminance components of said target macro block.

5 6. An image decoding device as set forth in Claim 1, wherein said predicted value storage means includes areas for holding DC components and AC components of respective positions in a process in which said target macro block is moved by one line in said image size.

10 7. An image decoding device as set forth in Claim 1, wherein said predicted value storage means includes an area for holding said DC components and AC components of one target macro block.

8. An image decoding device as set forth in Claim 2, wherein said predicted value storage means includes an area for holding said DC components and AC components of one target macro block.

15 9. An image decoding device as set forth in Claim 3, wherein said predicted value storage means includes an area for holding said DC components and AC components of one target macro block.

10 10. An image decoding device as set forth in Claim 4, wherein said predicted value storage means includes an area for holding said DC components and AC components of one target macro block.

20 11. An image decoding method for decoding, in target macro block units, of coded image signals that are coded by DCT, quantization, and variable-length coding, comprising:

setting a target macro block to be decoded currently, to identify a set target block;

performing a variable length decoding process and a zigzag scan on said coded image signal and extracting data of said target macro block to produce extracted target macro block data;

5 performing a DC/AC prediction process on said extracted target macro block data;

performing inverse quantization on target macro block data that have been subject to the prediction process;

performing inverse DCT on said target macro block data that have been subject to inverse quantization and outputting an image of this target macro block;

10 said step of performing a DC/AC prediction process includes performing said DC/AC prediction process while copying data, necessary for said prediction computation of a next target block, into a storage area; and

said storage area being smaller than a storage area that would be required for storage of data of an entire image.